

# Trans-Lake Washington Project EIS Methodology Report – 6/10/02

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## Air Quality

### Guiding Plans and Policies

- Code of Federal Regulations Title 40, Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (40 CFR 93).
- Chapter 173-420 Washington Administrative Code (WAC), *Conformity of Transportation Activities to Air Quality Implementation Plans*.
- Puget Sound Regional Council (PSRC), *Guidelines for the Interim Use of Adjusted Carbon Monoxide Mobile Output Files for Project Level Conformity*, 2001.
- U.S. Environmental Protection Agency (EPA), *Guideline on Air Quality Models*, 1986; revised, 1993.
- EPA, *Guideline for Modeling Carbon Monoxide from Roadway Intersections*, 1992.
- EPA, *User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations near Roadway Intersections*, 1995.
- EPA, *User's Guide for MOBILE6*, 2001.
- Washington State Department of Ecology (Ecology), *Guidebook for Conformity and Air Quality Analysis Assistance for Nonattainment Areas*, 1995.
- WSDOT Environmental Procedures Manual, Section 425, July 2001.

### Data Needs and Sources

- Existing ambient air quality monitoring data collected in the vicinity of the proposed alternatives by Puget Sound Clean Air Agency (PSCAA) and/or Ecology.
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- Traffic forecast data provided by the Trans-Lake Washington Project transportation team.
- Regionally specific input data from either Ecology or PSRC to run mobile source emission factor model (MOBILE6).
- Emission factors for construction equipment and activities from EPA or other agencies, where available.
- Air quality monitoring data collected by Medina, for review and potential use

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- Identification of types, frequency, and duration of construction activities from the Trans-Lake Washington Project design team.

### **Proposed Coordination with Agencies**

- Puget Sound Clean Air Agency (PSCAA)
- Washington State Department of Ecology (Ecology)
- Washington State Department of Transportation (WSDOT)
- Puget Sound Regional Council (PSRC)
- U.S. Environmental Protection Agency (EPA)

### **Proposed Coordination with Team, WSDOT, and Sound Transit**

- Dave Hilderbrant – design team
- Michael Horntvedt – traffic operations team
- Mia Waters – WSDOT Air Quality and Noise Program Manager
- John Maas – WSDOT Assistant Air Quality and Noise Program Manager

### **Study Area**

The air quality study area includes the SR 520 corridor from I-5 to Union Hill Road in Redmond, including interchanges and any local intersections peripheral to the corridor that may be affected by the proposed changes. Sensitive receptors such as schools and hospitals within 1/4 mile of the proposed alternatives will be listed. Sensitive receptors located beyond 1/4 mile of the proposed alternatives are not expected to be impacted by air quality from the project.

### **Affected Environment Methodology**

The affected environment discussion will describe the local climate and identify air quality regulations applicable to the study area. The existing compliance status of the region with respect to the National Ambient Air Quality Standards will be presented. Existing ambient air quality monitoring stations in or near the study area will also be identified, along with a qualitative summary of the data collected. The following locations of existing ambient air quality monitoring stations were identified in second-level screening for use in the Trans-Lake Washington project air quality analysis:

- 752 108<sup>th</sup> Ave, Bellevue
- 2421 148<sup>th</sup> NE Bellevue BP Station, Bellevue
- 4<sup>th</sup> & Pike Building, 417 Pike, Seattle
- Beacon Hill Reservoir, Charleston & 15<sup>th</sup>, Seattle
- University District Cycle, 1307 NE 45<sup>th</sup>, Seattle

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- James St & Central Ave, Seattle
  - 5<sup>th</sup> & James St, Seattle

It is assumed that the Trans-Lake Washington Project will not establish new project-specific air quality monitoring stations for the EIS.

## Environmental Consequences Analysis Methodology

### Direct Impacts

Potential impacts on air quality associated with the Trans-Lake Washington Project will be identified according to the following methodology:

- An emission burden analysis will be performed assuming operating conditions in the year 2030 for each alternative. Emissions, in tons per day, of nitrogen oxides, carbon monoxide (CO), and volatile organic compounds will be estimated using regional emission factor data and forecasted vehicle miles traveled on a daily basis. Due to the uncertainty about phasing of construction and year of opening, it is necessary to demonstrate that 2030 represents a “worst case” year in terms of air emissions. This will be accomplished by first performing the same burden analysis using forecasted traffic for 2010 and 2020 for the six-lane alternative. Should a year other than 2030 result in higher emissions, the burden analysis for the remaining alternatives will be calculated for that year.
- A screening analysis will be performed to identify the worst-case intersections for performing a CO hot spot analysis based on 2030 forecasts. Worst-case intersections will be defined as the three with the highest PM peak volumes and the three with the worst level of service (LOS); therefore analysis will be done on from 3-6 intersections.
- A hot spot analysis will be performed on the worst-case intersections using the MOBILE6 or currently approved model to calculate a fleet-averaged CO emission factor and using the CAL3QHC to calculate CO concentrations near the selected intersections. The analysis will be performed using PM peak-hour traffic volumes for existing conditions, and 2030 (build and no build alternatives). If a year other than 2030 is identified as “worst case” year in terms of air emissions (see above), then the intersection analysis will also be performed for that year for the selected 3-6 intersections. Results of the analysis will be used to determine CO conformity.
- A qualitative analysis of the impacts of air toxics and PM<sub>2.5</sub> associated with mobile sources will be provided.

### Construction Impacts

Impacts during construction will be assessed by estimating emissions using factors developed by EPA for specific activities such as excavation and grading. Where factors are available, emissions will be calculated for carbon monoxide, volatile organic compounds, PM<sub>10</sub> and PM<sub>2.5</sub>. Data from the design team, including very rough estimates of tons of soil moved and truckloads per day, will be gathered for different sections of the alignment.

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A qualitative evaluation will be performed for construction impacts not easily quantified, such as detour and delay of local traffic.

Potential hazardous air pollutants releases, such as lead (from paint removal), toxic pollutants (from paint application) or asbestos, will be evaluated qualitatively.

### **Mitigation Measure Methodology**

Mitigation measures will be proposed for both operation and construction impacts, as necessary and in consultation with appropriate agencies. Identification of permits, if required for any temporary sources such as rock crushers or asphalt plants, will be included in this section.

This section will include identification of resources and guidelines for reducing fugitive dust emissions, including best management practices and the Memorandum of Agreement between WSDOT and PSCAA.

If applicable, requirements for demolition of structures containing asbestos will be identified.

### **Project Conformity Statement**

Based on the findings of the impacts analysis, a project-level conformity determination will be made and presented for the preferred alternative for CO and ozone. It is assumed no conformity analysis will be required for particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>) because the project corridor is not adjacent to the Duwamish PM<sub>10</sub> maintenance area. CO conformity will include discussion of both regional and localized (hot-spot) conformity. As required by the conformity regulations, this section will also identify the conforming Metropolitan Transportation Plan (MTP) and Transportation Improvement Plan (TIP) in which this project is included.

Regional ozone conformity will be assessed quantitatively using an emissions burden calculation and comparison to the emission budget allowed by the State Implementation Plan if the project differs substantially from that analyzed in the MTP and TIP.

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